F·A·A·M facility for airborne atmospheric measurements

FLIGHT FOLDER

Flight No.:	B310
Date:	24 July 2007
Take Off	11:46:16Z
Landing:	15:19:18
Flight Time	3h33m02s

Campaign: COPS

Operating Area: Baden-Baden, Germany

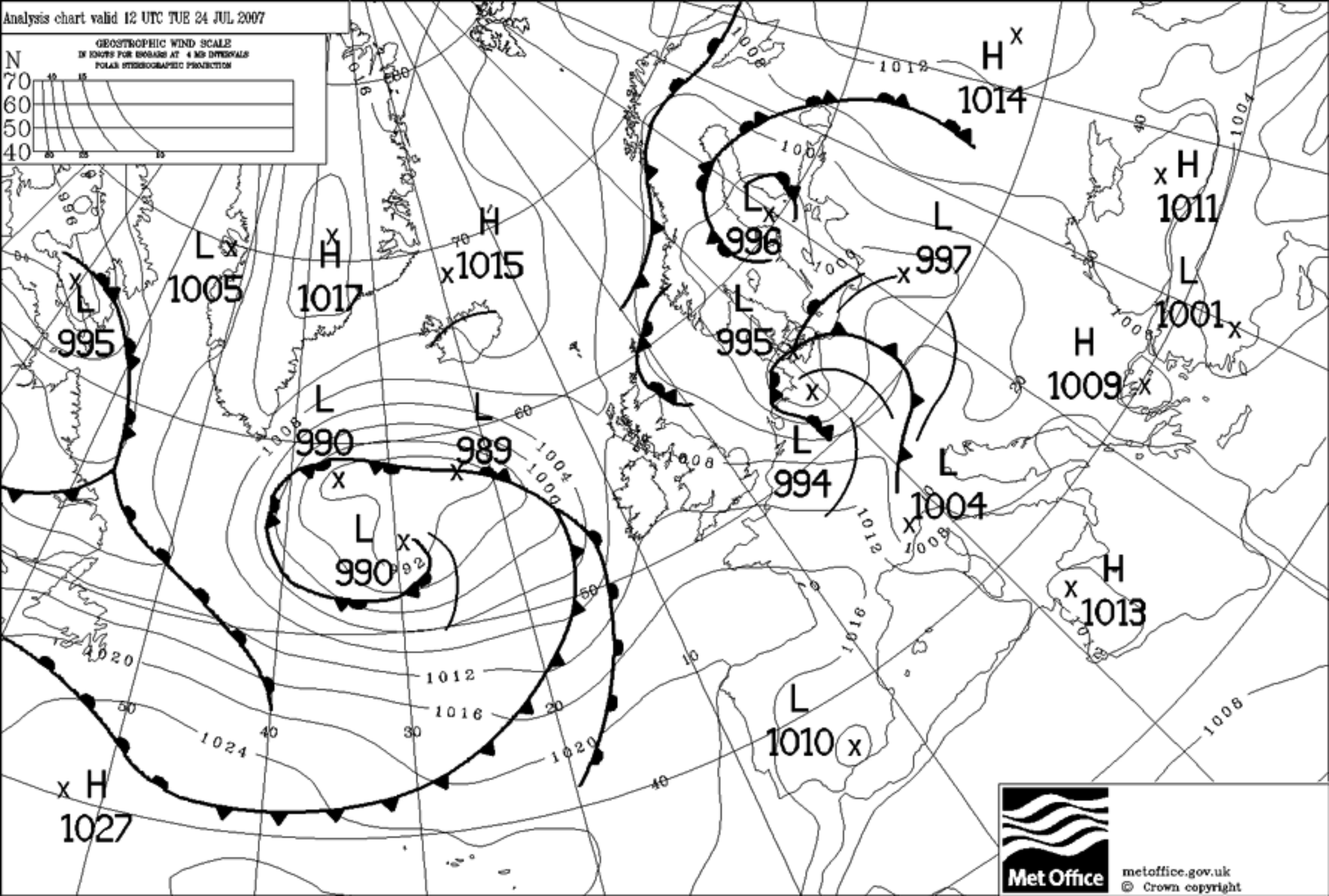
POB	Position	Name	Institute
1	Captain	Al Foster	Directflight
2	Co-pilot	Ian Ramsay-Rae	Directflight
3	CCM 1	Dawn Quinn	Directflight
4	Mission Scientist 1	Hugh Coe	University of Manchester
5	Flight Manager	Mo Smith	FAAM
6	Cloud Physics / CDP/ CCM2	Kate Turnbull	FAAM
7	Core Chemistry	Doug Anderson	FAAM
8	VACC 1	Angela Dean	Leeds University
9	VACC 2	Victoria Smith	Leeds University
10	CPI 1	James Dorsey	University of Manchester
11	CPI 1	Martin Gallagher	University of Manchester
12	CVI	James Bowles	Met Office
13	Nephelometers / PSAP	Dave Tiddeman	Met Office
14	AMS	Will Morgan	University of Manchester
15	Mission Scientist 2	Keith Bower	University of Manchester
16	Mission Scientist 3	Justin Peter	Leeds University
17			
18			
19			
20			

Flight Track:

FLIGHT SUMMARY

Flight No B310
Date: 24 July 2007
Project: COPS
Location: Baden Baden

Start Time	End Time	Event	Height (s)	Hdg	Comments
103919		Start-Up	0.58 kft	159	48'46.90N, 008'05.33E
114616		T/O	1.7 kft	214	Baden Baden
115837		Video	4.2 kft	241	Start FFC & UFC1
115947	120044	Profile 1	3.7 - 2.7 kft	219	4k' - 2.5k'
120045	121515	Run 1	2.7 kft	217	To A, 2'5k'
121540	121605	Run 1	2.7 kft	204	
121659	122137	Profile 2	2.7 - 7.0 kft	098	2.5k-7k'
122137	123321	Run 2	7.0 kft	030	B-C
123327	123541	Profile 3	7.0 - 4.7 kft	340	4.5k' Q1009
123642	123826	Profile 3	4.6 - 2.7 kft	241	4.5k-2.5k' Q1009
123826	125356	Run 3	2.7 - 2.6 kft	219	2.5k' Q1009 to A
125452	125847	Profile 4	2.6 - 7.0 kft	091	2.5k-7k' , A-B
125957	131211	Run 4	7.0 kft	352	B-C
131405	132325	Profile 5	7.1 - 17.0 kft	181	
132517	132929	Profile 6	17.0 - 13.5 kft	040	
133031	133437	Profile 6	13.5 - 10.0 kft	231	
133104		Video	13.0 kft	232	Change tapes
133453	134337	Run 5.1	10.0 kft	232	
134525	135321	Run 5.2	10.0 kft	202	
135328	135826	Run 5.3	10.0 kft	357	
135443		Event	10.0 kft	034	Ovhd Hornisgrinde
140008	140151	Run 5.4	10.0 kft	292	
140230	140450	Profile 7	10.0 - 12.0 kft	280	
140855	140959	Profile 8	12.0 - 11.0 kft	272	
141118	141547	Run 6	11.0 kft	199	
141602	141658	Profile 9	10.9 - 10.0 kft	288	
141658	142035	Run 7	10.0 kft	299	
142539	143042	Profile 10	10.0 - 15.0 kft	245	
143555	144327	Profile 11	15.0 - 7.0 kft	023	
144417	144838	Profile 11	7.0 - 2.6 kft	280	To 2.5k', QNH 1011
144838	150156	Run 8.1	2.6 kft	217	
150340	150726	Run 8.2	2.6 kft	044	2.5k'
150739	150941	Profile 12	2.6 - 5.1 kft	020	
151918		Land	0.46 kft	122	Baden Baden
152355		Shutdown	0.46 kft	147	48'46.9N, 8'05.33E


Analysis chart valid 12 UTC TUE 24 JUL 2007
GEOSTROPHIC WIND SCALE
IN KNOTS FOR ISOBARS AT 4 MB INTERVALS
POLAR STEREOGRAPHIC PROJECTION
N
70
60
50
40
L 995
L 1005
H 1017
H 1015
L 990
L 989
L 990
L 996
L 997
L 995
L 994
L 1004
H 1014
H 1011
L 1001
H 1009
H 1013
L 1010
H 1027
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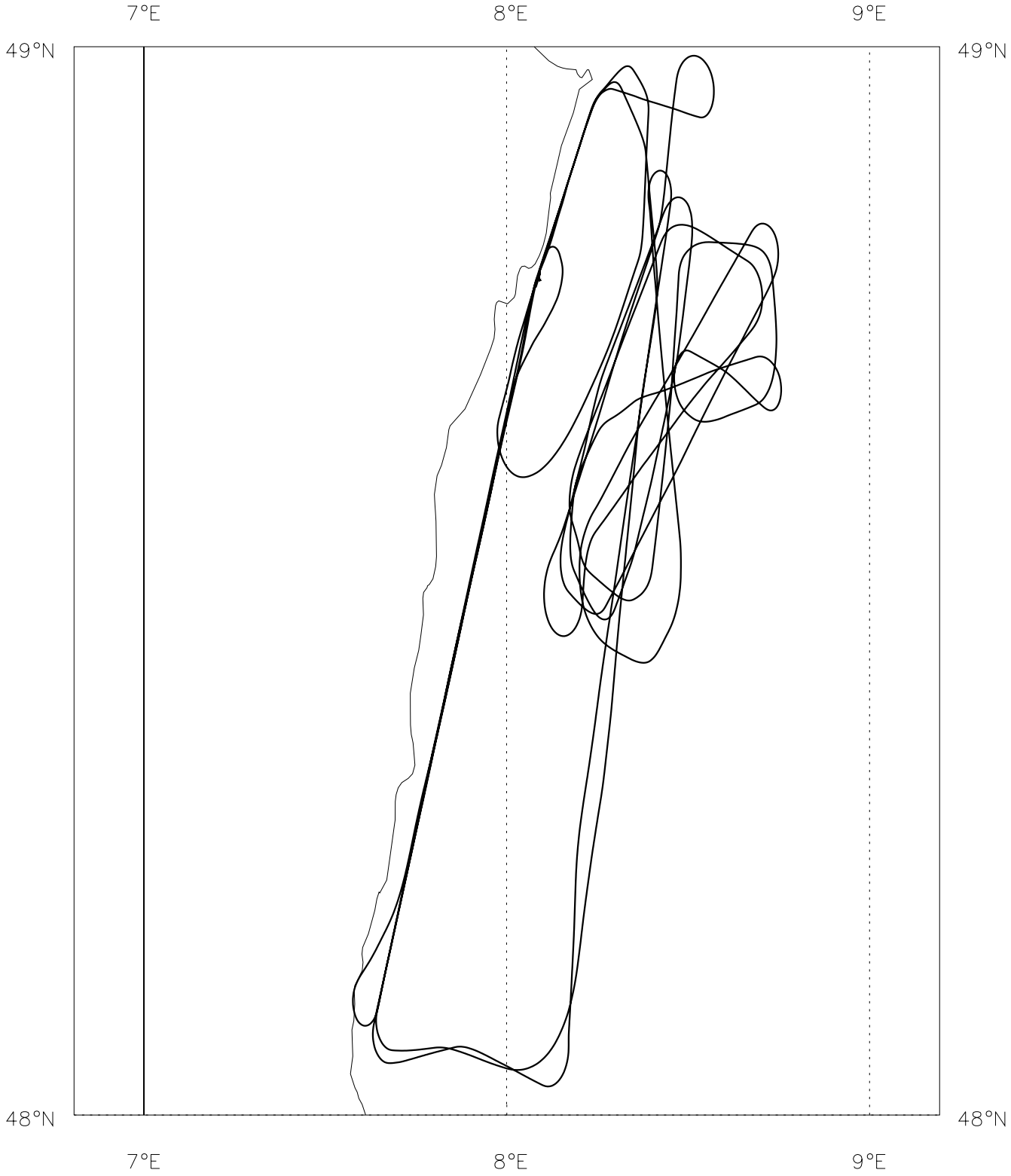
B310 Track 24-JUL-07



PROJECT BRIEF: COPS - Convective and Orographically-induced Precipitation Study.

Scientific Aims: The goal of UK-COPS is to determine the properties of the aerosols that will likely be ingested into the convective clouds that form over the Black Forest mountains and to understand the formation and growth of ice and precipitation in these clouds . We wish to examine:

- the properties of the representative aerosol particles in the clear air that are transported into the convective clouds
- the concentration and size of cloud droplets just above cloud base
- the formation of the first ice due to primary nucleation on ice nuclei (IN)
- the development of ice via secondary processes such as the Hallett-Mossop process, in which new ice particles are generated during the riming growth of ice particles
- other secondary ice production processes, such as evaporative break-up;
- the production of supercooled raindrops and their role in the glaciation process
- the dependence of these processes on the dynamics of the cloud
- the production of precipitation

There will either be 2 flights per day: one in clear air to measure the properties of the aerosols and one later in the convective clouds; or the two parts will be flown in a single flight. Measurements will be made in cumulus clouds when their tops are about 0°C through to when the tops have grown to about -20°C.

Weather conditions:

Developing showers over the Black Forest mountains, Germany, within Box A and probably B.

Safety: Regions that paint RED on the aircraft weather radar should be avoided. No flight into clouds known to be producing lightning. There may be coordination with the DO-128 in Boxes A and B. The French and German Falcons may also be operating in the area.

Key instruments and their operation:

Basic meteorology

- Rosemount temperatures, GE hygrometer
- GPS, INU, turbulence probe. When in supercooled liquid water, Flight Manager or PIs should monitor turbulence probe and calibrated differential pressures for signs of icing (cessation of variability on signal).

Cloud Physics/Aerosol

- FFSSP, 2DC, 2DP, PCASP, CDP, CIP, SID-1 and SID-2. Normal monitoring to ensure correct operation. Operator should note particular features of interest eg. high concentrations, appearance of pristine ice crystal habits, appearance of large drops ($d > 100$ μm) in 2D imagery when above freezing level.
- CPI as above
- J-W LWC and Nevzorov LWC/TWC. Where straight/level and in clear air, these should be zeroed/calibrated and a note made in the Flight Managers log.
- TWC - profile ascents/descents should avoid cloud if possible
- AMS -
- CVI - below cloud base, normal operation is in aerosol mode; above cloud base, normal operation is in CVI mode
- VACC - in straight and level clear-air, 10 min runs; during cloud work and profiles, single temperature.

Sortie Brief:	**COPS** – Convective and Orographically-induced Precipitation Study
Flight Number:	B310
Date:	24 July 2007
Mission Scientists:	Hugh Coe, Keith Bower
TO Time:	13:50 local
Box activated:	15-18 local
Other a/c:	Possible: DO-128 (Coord with 146); ATR-42 (FL110-120)

Sortie Aims: To measure properties of aerosols in the clear air and the development of convective clouds.

Sortie Location: Clear air in Rhine Valley and in convective clouds over Black Forest mountains. Leg over supersites.

Sortie Summary:

1. Characterise properties of aerosols in clear air at low levels.
2. Penetrate cumulus clouds preferably near the top of the cloud in the updraught. All cloud penetrations should be with *wings level*. Two principal options are:

   A. stationary cloud or system of clouds;

   B. several cumulus clouds either in area (low wind) or passing through the area.
3. Characterise properties of aerosols in detrainment layers around cloud.
4. Overfly supersites M, H and R.

Sortie Detail:

1. Out-of-Cloud: All changes in altitude at standard rates (1000 ft/min).
   2 x Rhine Valley aerosol legs (70 mins)
2. Cloud work:

   Note an important feature is to ascend with tops. This requires a non-standard ascent as fast as possible. Contact DO-128 on COPS frequency. Relay cloud top info to the DO-128.

   Option A: Isolated developing clouds – ascend with the clouds near their top. All penetrations at constant altitude.

   A.1 Proceed to about 0°C or top of cloud.
   A.2 Adjust altitude to about 1000 ft below cloud top and penetrate cloud. The penetration should be made at a constant azimuth and altitude if possible. It is important to penetrate the growing turret in the updraught region. A few seconds after clearing cloud, turn and ascend for return to same region of cloud as quickly as possible using procedure turn.
   A.3 Repeat A.3, ascending with the top (if appropriate) at the end of each penetration out of cloud, until FL200 or FL240, or cloud becomes too developed.
   A.4 Repeat A.1 - A.4 for a new developing cumulus, go to **Option B**, or exit box.

   Option B: Many developing cumulus clouds – sample clouds at constant altitude.

   B.1 Proceed to 0°C
   B.2 Commence 10 min runs (turning where appropriate) in along shear direction. Adjust track to randomly sample the updraught regions of growing turrets.
   B.3 Ascend to -5°C (i.e. approximately 3500 ft) and repeat above for 10 min.
   B.5 Repeat for -10°C, -15°C and -20°C if possible.

3. Detrainment layers

   Proceed to level where cloud is being detrained from cloud and either make penetrations or circle around the cloud.
4. Leg over supersites Murg Valley (M), Hornisgrinde (H) and Achern (R) at about 5500 ft if in clear air. (15 min). Please make SATCOM phone call to Ops Centre 15 mins before overpass of Supersites: 07229 66 2550, or 2551.

Mission Scientist's Debrief Sheet

Flight B310 24th July 2007

Summary of the weather conditions:

A cold front passed over the COPS area during the late afternoon/early evening of 23rd July and by T/O had moved to the east. This was followed by a series of troughs bringing cloud and showers across the region from a NW direction. One of these was positioned over the COPS area at T/O. Cloud was around 3300 ft.

Scientific Aims;
The flight aimed to probe the development of convective showers over the western edge of the Black Forest region to the east of the Rhine that were predicted to develop as the trough cleared the region after take off. Aerosol characterisation legs in the Rhine valley were also to be conducted to characterise the aerosol input into the Black Forest valleys feeding the convective clouds.

Points defined:
Point EDSB (48 46' 8"N, 8 4' 8"E) Karlsruhe/Baden-Baden; Point A (48 05'N, 7 38'E); Point B (48 2'N, 8 6'E); Point C (48 51'N, 8 27'E); predefined box A and B were activated between 1300Z and 1600 Z.

Summary of the flight:
Initially, the low level leg over the central Rhine Valley between EDSB and Point A was conducted. It was cloudy at the northern end of the run but cleared to the southern end of the leg. Showers were present to both sides of the Rhine. The aerosol concentrations were low, having been washed out by the previous trough. A profile from point A to point B was conducted to reach point B at 7000 ft and an SLR at 7000 ft was conducted. The usual 5500 ft altitude for this leg was not possible due to low cloud over the Black Forest. Cloudy with embedded Cu throughout the whole run north. Cloudbase was at 3500 ft during the descent into the Rhine Valley between point C and EDSB. The low level aerosol leg to the west (EDSB to point A) again showed multiple showers tracking from the west. There was far less cloud to the south. PCASP was noisy in channel 1. Ascending into the box region, it was clear that the low Cu in the Rhine valley was becoming rather scattered and sitting between 6500 ft and FL070. Some thin cirrus was dissipating aloft. The bottom level of the box, FL100, was out of the majority of cloud, though some cloud penetrated to FL145. CPI and cloud physics reported seeing some ice. After a brief profile to establish the temperature structure in the box, a decent to the bottom of the box was conducted. Two cloud turrets were identified in the centre of the box that appeared to be locked to high terrain and several passes of this cloud were made at FL100. After ascent to FL120, an SLR through the same location was conducted but the cloud was not developing. It became clear from the CPI that the ice was old and showed signs of melt. The Cu decayed throughout the region and clear skies were now widespread. This was the influence of the high pressure ridge that developed during the evening and into 25th July. No convection was evident at all in the region so descended into the Rhine Valley to characterise the aerosol before the high pressure builds on July 25th and July 26th before landing.

Hugh Coe 26/7/07

Mission Scientist's Log

Flight No B.310 **Date** ....24/7/17 **Name** ....HUGH COE.... **Page** 1 **of** 6

Time (Z)	Cloud Type/ Amount (oktas)	Weather	Visibility (kms)	Wind direction°/ Speed(kts)	Remarks Special features – Position, Run/Profile, Height, Heading Events - Instrument problems, Change plan/ Operating Area
11:37Z	Sc 8/8 some Cu	dbl 272 ff 44 kts	10km	/	FRONT ~~~ YESTERDAY MOVED TO EAST SERIES OF SHOWERY TROUGHS, ONE OVERHEAD
				/	AT ~~BASE~~ SECURITY 11Z, NOW CLEARING AIM TO FLY IN CONVECTIVE SHOWERS BEHIND
~~11:47Z~~ 11:49Z				/	T/O Cloudbase 3300 ft.
11:50Z.				/	Cloudtop 5200 ft
				/	Mid level cloud above low level Sc
12:00:47				/	PROFILE ~~#~~ END SLR1 Start 2500 ft
12:03.7				/	at cloud base at N end of run
				/	but now clear at 2500 ft
				/	Showers ahead to E+2.
12:17Z				/	~~E~~S end of SLR1 6 neph
				/	PCASP reads 5100 p/cc
				/	CN = 2200 p/cc
				/	neph 6 m_{an}^{-1}, Arms reports
				/	similar.
				/	~~PCASP~~
12:~~17~~Z				/	New ascending profile 1 to
				/	start N run. some good showers
				/	embedded. ~~Start~~ end profile 2.
12:21:32Z		dbl 272 ff. 44kts		/	Start of run 2.1 FL070
				/	In cloud, cell to the
				/	right of us. and pass-ing run
12:35:27				/	~~SSW~~ SW ~~E~~ end of SLR1 at end
				/	HDG 340 wind 18 ms^{-1} T 7.1C
				/	in cloud.

Mission Scientist's Log

Flight No B.310.. Date 24/7/07.... Name ....MUSIM CCE..... Page 2 of 6..

Time (Z)	Cloud Type/ Amount (oktas)	Weather	Visibility (kms)	Wind direction°/ Speed(kts)	Remarks Special features – Position, Run/Profile, Height, Heading Events - Instrument problems, Change plan/ Operating Area
12:37Z				/	3500ft cloud base at N end.
				/	slow to E of Rhine clearing
				/	to S and W of Rhine and into
				/	Vosges.
12:40Z.				/	Right at cloud base at N end
				/	of run.
12:38:26Z				/	Start of run 3 for northend
				/	of westerly leg
12:45Z				/	Shear lines breaking westwards
				/	across middle
12:46:25Z				/	Into shear again, however brief
				/	min squall behind me.
12:53:36Z				/	At end of run 3 at pitot. Looks
				/	very clear to South, much
				/	less cloud
12:54Z				21 2kts / 10.7C T_{dew} 8.4C.	GIN misreading just noticed
12:54:52Z				/	profile climb & start for 2700'
				/	to FL070.
				/	Cloudbase at FL052.
13:02 Z				/	Cloud physics. PCASP noisy esp in cloud
				/	90000–100,000 cnts 1. all channels
				/	see ~1000 p/cc
13:10Z.				/	Requesting profile ascent in
				/	lee to FL200

Mission Scientist's Log

Flight No B. 310 **Date** 24/7/07 **Name** MWM CCC **Page** 5 **of** 6

Time (Z)	Cloud Type/ Amount (oktas)	Weather	Visibility (kms)	Wind direction°/ Speed(kts)	Remarks Special features – Position, Run/Profile, Height, Heading Events - Instrument problems, Change plan/ Operating Area
13:12:11Z				/	end of run 4 part C Hdg 350
13:14:05Z				/	Start of profile 5 FL070 to FL
				/	
				/	bases in Rhine Valley at
13:16:00Z				/	6500 – FL070 scattered.
				/	Some thin cumis but dissipating
				/	Showers are scattered.
13:17Z				/	ended base
				/	Out of cloud at FL100.
				/	Cloud tops at FL145 soaring
				/	ice reports CP1.
13:23:25Z				/	Profile 5 ends 4
13:25:17Z				/	Profile 6. starts descending for
				/	breaks over min edge of
				/	Black forest St
				/	Clearing to north.
				/	Heading south and descending
				/	to FL100 for first level leg.
				/	end Profile 6 @ at
				/	and start of ~~profile~~ run 5
				/	FL100 T -2.1°C.
13.41Z				/	ended cloud.
13.43.47Z				/	end of run 5 end of heading N
13:47Z				/	Now clear for 1 min

13:50Z

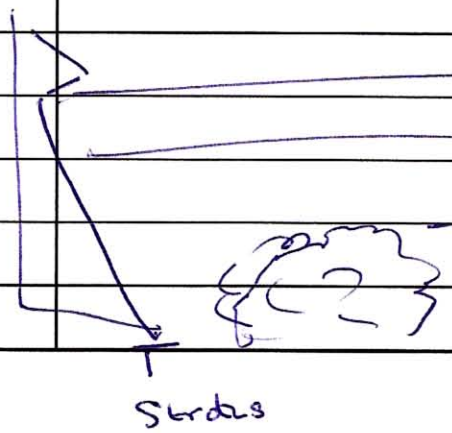
FL100
FL120
FL135
FL145/150

reentering cloud. this was a short lived

Mission Scientist's Log

Flight No B310 **Date** 24/7/07 **Name** HUGH COE **Page** 4 **of** 6

Time (Z)	Cloud Type/ Amount (oktas)	Weather	Visibility (kms)	Wind direction°/ Speed(kts)	Remarks Special features – Position, Run/Profile, Height, Heading Events - Instrument problems, Change plan/ Operating Area
13:53:28				/	end of 5.2 start of 5.3 at FL010 heads
				/	
13:00:08				/	start of run 5.4
14:01:51				/	end of run 5.4
				/	There are two developing
				/	Cu clouds at lat/long
				/	that appear to be locked
				/	by orography.
				/	Joins a this pic now penetrated
				/	several times at FL010
				/	now to penetrate at FL120
				/	Clear air
14:11:18				/	FL110 run 6.
				/	This runs the above
				/	the convection.
				/	
14:15:47				/	end of run 6 start of pitch side 7
				/	descending to FL100
				/	
				/	FL130.
				/	Starts FL110
				/	FL100.
				/	
				/	



Mission Scientist's Log

Flight No B.130 **Date** 24/7/09 **Name** MUGHCOE **Page** 5 **of** 6

Time (Z)	Cloud Type/ Amount (oktas)	Weather	Visibility (kms)	Wind direction°/ Speed(kts)	Remarks Special features – Position, Run/Profile, Height, Heading Events - Instrument problems, Change plan/ Operating Area
				/	Cloud dissipating and
				/	brightening up in area.
14:25Z				/	Cu swell base and dissipating
				/	status above. ✱ No Cu
				/	likely to be advected into
				/	area, or need any convection
				/	to be locally forced.
				/	likely to be high P developing
				/	ridge affecting region
				/	Waiting on info from Ops.
				/	Conducting a profile from FL100
				/	to FL150 to establish if
				/	there is any sig. inversions
				/	
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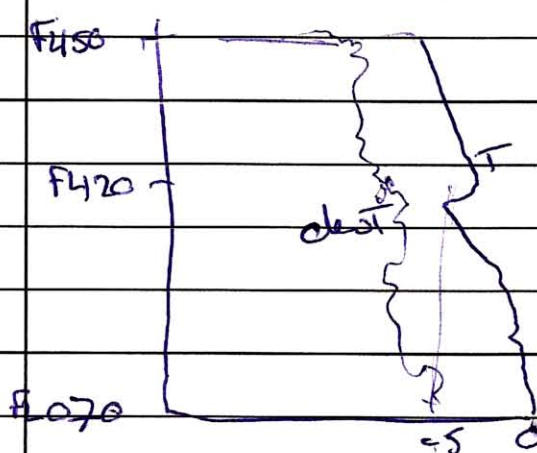

no evidence of any convection initiation or generation/growth at all so exit box @ 14.40Z.

RTO

Decided to do a Elvanfoot log to establish consistency for tomorrow.

14:22Z at north end of Rhue Valley run IKEBB. heading S to characterise aerosol at 2500ft

15:01:5Z end of Southerly run & down Rhue Valley

15:03:40Z start of run 9 heading N.

15:10Z end of science, descending to land.

CLOUD PHYSICS LOG Flight B310

Date: 24/07/07	Operator: KFT	DRS Time: 10:37:00	DAU1 Time: +0	DAU2 Time: +0	DAU3 Time: +0	Aux1 Time: +0	Aux2 Time: +0	Page 1 of 1

G.M.T	PCASP		FFSSP	SID1	SID2	2D2-C		2D2-P		CIP25			CIP100			Habit	Remarks
	Conc/cc	Mean R	Block TX	Count	Count	Conc/L	Max size	Conc/m3	Max size	Conc m3	Max size	LWC	Conc m3	Max size	LWC		
11:54:00	13133	0.07	648	6000	0	59	500	5125	200							1	FL060
11:56:00	16075	0.10	855	6000	2000	66	200	300	200							1	FL060
11:58:00	8169	0.06	947	50	1000	17.5	350	4050	200							1	FL042
12:00:00	12750	0.06	970	3000	800	1	650	0	200							1	FL030
12:00:45	8486	0.06	973	80	1000	13	700	4608	800							1	FL025 START RUN1.1
12:03:00	7719	0.06	999	100	2000	0.5	600	16	600							1	Below cloud bases
12:05:00	7237	0.06	999	8	1	0	0	0	0								FL025
12:07:00	5555	0.06	999	8	0	0	0	0	0								
12:09:00	6373	0.06	999	3	0	0	0	0	0								
12:11:00	6397	0.06	999	3	0	0	0	0	0								
12:13:00	6382	0.06	999	0	1	0	0	0	0								
12:15:00	5798	0.06	999	10	0	0	0	0	0								
12:16:07	5288	0.06	1000	8	1	0	0	0	0								End run 1.1 FL025
12:17:00	5160	0.06	1000	8	1	0		0									Start profile
12:17:50	4973	0.06	1000	5	0	0	0	0	0								FL035
12:18:23	4720	0.06	1000	20	1	0	0	0	0								FL040
12:19:23	5038	0.06	1000	3000	5000	0	600	180	3200							1	FL055
12:21:10	8899	0.06	1214	8	1000	0	800	50	3200							1	FL070 start run 2.1 fl070 IN CLOUD T=PS03
12:23:00	13200	0.07	1564	5000	1000	0	0	366									2dp noise?
12:25:00	13024	0.08	66	5000	2000	3	800	116	800							1	FFSSP frozen -> restarted as file b310b
12:27:00	7464	0.08	297	5000	1000	1.5	25	350								12	T>0
12:29:00	24419	0.09	489	5000	1000	0.5	25	58								12	2DP NOISE?
12:31:00	8575	0.06	739	3000	1000	40.5	250	400	250							1	
12:33:00	19247	0.09	978	5000	1000	177	450	1033	450							1,12	END RUN 2.1 START PROFILE 3
12:34:27	11002	0.06	1133	5000	1000	0	0	16	400							1	FL060
12:35:17	13937	0.06	1191	5000	3000	0	0	108	400							1	FL050
12:37:21	9584	0.06	1203	8	0	0	0	0	0								FL040
12:38:10	11016	0.06	1203	2	0	0	0	0	0								FL030
12:38:30	9845	0.06	1203	8	0	4.5	400	175	400							1	FL025 START RUN 3.1 END PROFILE 3
12:40:00	8441	0.06	1214	20	100	0.5	400	0	0							1	JUST AT CLOUD BASE
12:42:00	6819	0.06	1250	3	0	0	0	0	0								
12:43:00	5595	0.06	1251	100	20	2	600	2000	800							1	
12:45:00	4497	0.06	1251	3	0	0		8	1000							1	
12:47:00	5065	0.06	1253	80	20	7.5	800	775	1600							1	
12:49:00	6475	0.06	1256	20	8	4	750	650	1600							1	
12:51:00	6149	0.06	1258	5	0	0		0									
12:53:00	5785	0.06	1258	8	1	5	800	33	1600							1	End run 3.
12:55:13	5517	0.06	1259	4	0	0	0	25									FL030 2dp noise
12:56:12	5021	0.06	1259	4	1	0		0									FL040
12:56:55	8470	0.06	1297	5000	3000	5	800	50	1600							1	FL050 cloud base
12:57:50	7983	0.06	1459	5000	5000	2.5	800	366	1200							1	FL060
12:58:47	5858	0.06	1694	5000	3000	1.5	400	333	1200							1	FL070 END PROFILE 3
12:59:58	10744	0.06	1883	5000	3000	1	800	316	800							1	START RUN 4 FL070
13:02:30	11063	0.08	2404	5000	2000	21	325	700	800							1	
13:04:00	11826	0.08	2675	5000	1000	30	525	17200	800							1	CONSTANT IMAGES ON 2D PROBES
13:06:00	16505	0.09	2901	5000	1000	25	325	1000	1200							1	

CLOUD PHYSICS LOG Flight B310

Date: 24/07/07	Operator: KFT	DRS Time: 10:37:00	DAU1 Time: +0	DAU2 Time: +0	DAU3 Time: +0	Aux1 Time: +0	Aux2 Time: +0	Page 2 of 2

G.M.T	PCASP		FFSSP	SID1	SID2	2D2-C		2D2-P		CIP25			CIP100			Habit	Remarks
	Conc/cc	Mean R	Block TX	Count	Count	Conc/L	Max size	Conc/m3	Max size	Conc m3	Max size	LWC	Conc m3	Max size	LWC		
13:08:00	15208	0.07	3227	5000	2000	12.5	200	241	800							1	SOME NOISE ON 2DP
13:10:00	13973	0.06	3398	5000	1000	0		8								1	
13:12:00	7563	0.06	3803	5000	2000	0.5		0									END RUN FFSSP SYNCH'ED
13:14:00	27500	0.06	3915	5000	10000	0		0									START PROFILE
13:15:00	14027	0.06	4030	0	8000	0		225	800							1	FL080
13:15:45	13797	0.06	4108	5000	8000	0		17	800								FL090
13:16:35	12261	0.06	4193	0	0	0		0									FL100 HEATERS ON
13:17:40	6839	0.05	4193	0	8000	0		0									FL110
13:18:27	6886	0.05	4193	0	500	0		0									FL120
13:19:15	6772	0.05	4193	0	4000	0		0									FL130
13:20:00	6279	0.05	4193	5	2000	0		0									FL140
13:20:50	5130	0.05	4193	0	5000	0		0									FL150
13:22:05	4734	0.05	4193	0	4000	0		0									FL160
13:23:21	5201	0.05	4193	0	2000	0		0									FL170 END PROFILE
13:25:00	5618	0.05	4193	0	1000	0		0									
13:26:15	6114	0.06	4193	0	800	0		0									FL160 FFSSP BASES INCREASED
13:27:10	7323	0.05	4193	1	2000	0		0									FL150
13:28:15	7136	0.05	4193	0	1000	0		0									FL140
13:30:58	7455	0.05	4193	0	1000	0		0									FL130
13:32:03	10111	0.05	4198	2000	800	0		0									FL120
13:33:20	7277	0.05	4198	0	200	0		0									FL110
13:34:30	7455	0.06	4199	20	2000	0.5	400	0								8	FL100
13:36:00	11657	0.06	4233	5000	3000	19.5	225	966	200							5,8	IN CLOUD
13:38:00	5840	0.06	4445	200	50	118	775	3374	800							4,3,8	
13:40:00	5402	0.06	4529	200	2000	0		0									
13:41:10	14460	0.06	4665			4.5	400	600	400							5,8	IN TURRET, FFSSP SYNCH'ED
13:43:00	5512	0.06	4723	0	800	0		0									
13:45:00	7045	0.05	4723	0	0	0		0									
13:47:00	12844	0.06	4813	8000	10000	50	400	1000								5,8	IN TURRET
13:49:00	7598	0.05	4841	0	20	0		0									
13:50:20	11881	0.05	4898	5000	1000	5.5	725	675	800							5,11	IN CLOUD
13:52:00	9510	0.06	4908	1000	2000	70	600	9683	800							5,11	
13:53:20	12881	0.05	5102	5000	800	0		0									END RUN 5.2
13:55:00	7085	0.05	5150	0	800	0		0									
13:57:40	15919	-.05	5341	8000	2000	3.4	400	500	400							8,1	CLOUD, FFSSP SYNCH'ED
14:00:00	7702	0.05	5342	0	800	0		0									RUN
14:00:30	12939	0.06	5516	8000	100	235	200	841								8,1	
14:02:34	6481	0.05	5580	0	0	0		0									FL100. START PROFILE
14:03:28	7829	0.05	5580	0	10	0		0									FL110
14:04:45	7839	0.05	5580	0	500	0		0									FL120 END PROFILE
14:06:00	7287	0.05	5580	0	80	0		0									
14:08:00	7409	0.05	5580	0	0	0		0									
14:08:53	7574	0.05	5580	0	0	0		0									START PROFILE 8 FROM FL120
14:09:45	6817	0.05	5580	0	20	0		0									FL110, END PROFILE 8
14:12:00	6892	0.05	5580	0	50	0		0									FL110
14:14:00	5904	0.05	5580	0	500	0		0									

CLOUD PHYSICS LOG Flight B310

Date: 24/07/07	Operator: KFT	DRS Time: 10:37:00	DAU1 Time: +0	DAU2 Time: +0	DAU3 Time: +0	Aux1 Time: +0	Aux2 Time: +0	Page 3 of 3

G.M.T	PCASP		FFSSP	SID1	SID2	2D2-C		2D2-P		CIP25			CIP100			Habit	Remarks
	Conc/cc	Mean R	Block TX	Count	Count	Conc/L	Max size	Conc/m3	Max size	Conc m3	Max size	LWC	Conc m3	Max size	LWC		
14:14:36	5776	0.05	5580	20	800	2	400	0								5,6	
14:16:02	5844	0.05	5584	2000	800	30	650	3608	800							5,8	No water
14:17:00	7090	0.06	5647	1000	1000	100	650	2000	800							5,8	No H2O FL100 end profile, start run
14:19:00	6339	0.05	5731	0	100	0		0									
14:20:34	5961	0.05	5731	0	800	0		0									End run
14:23:00	7199	0.05	5732	0	10	0		0									
14:25:00	7785	0.05	5732	0	0	0		0									
14:25:38	7938	0.05	5732	0	200	0		0									Start profile 10 FL100
14:26:49	7282	0.05	5732	0	10	0		0									FL110
14:27:57	7507	0.05	5732	0	200	0		0									FL120
14:28:50	7772	0.05	5732	0	500	0		0									FL130
14:29:43	8338	0.05	5732	0	500	0		0									FL140
14:30:42	6503	0.05	5732	0	800	0		0									FL150 end profile 10 at FL150
14:33:00	4836	0.05	5732	0	900	0		0									
14:35:00	4728	0.06	5732	0	200	0		0									
14:35:51	5324	0.05	5732	0	1000	0		0									Start Profile 11 at FL150
14:36:50	6518	0.05	5732	0	200	0		0									FL140
14:37:30	6141	0.05	5732	0	1000	0		0									FL130
14:38:10	6486	0.05	5732	0	400	0		0									FL120
14:38:56	6617	0.05	5732	0	800	0		0									FL110
14:39:55	8001	0.05	5732	0	0	0		0									FL100
14:40:55	8090	0.05	5732	0	0	0		0									FL090
14:42:00	7566	0.06	5732	1	0	0		0									FL080 CLOUD TOPS FL077
14:43:30	11342	0.06	5902	5000	5000	0		500	800								FL070 HEATERS OFF
14:45:10	16416	0.06	6487	5000	10000	0		1000	800								FL060
14:46:07	14781	0.06	6711	5000	8000	0		100	800								FL050
14:47:05	9288	0.06	6723	10	1	0		1000	800								FL040
14:48:05	8823	0.06	6723	10	1	0		0									FL025 END PROFILE 11, START RUN
14:50:00	8131	0.06	6723	10	1	0		0									FL025
14:52:00	6605	0.06	6723	10	1	0		0									
14:54:00	5215	0.06	6723	10	1	0		0									
14:56:00	4570	0.06	6723	10	1	0		0									
14:58:00	5543	0.06	6723	8	1	0		0									
15:00:00	5787	0.06	6724	4	0	0		0									
15:02:00	5276	0.06	6724	4	0	0		0									END RUN AT FL025
15:02:20	4468	0.06	6725	20	50	2.5	800	260	3200							1	A FEW FRAMES ONLY
15:03:39	4850	0.06	6727	5	0	0		0									START RUN AT FL025
15:05:00	4626	0.06	6727	2	1	0		0									
15:07:25	5599	0.06	6728	5	1	0		0									END RUN
15:07:58	5614	0.06	6728	10	0	0		0									FL030
15																	FL040
																	FL050

CLOUD PHYSICS LOG Flight B310

Date: 24/07/07	Operator: KFT	DRS Time: 10:37:00	DAU1 Time: +0	DAU2 Time: +0	DAU3 Time: +0	Aux1 Time: +0	Aux2 Time: +0	Page 4 of 4

G.M.T	PCASP		FFSSP	SID1	SID2	2D2-C		2D2-P		CIP25			CIP100			Habit	Remarks
	Conc/cc	Mean R	Block TX	Count	Count	Conc/L	Max size	Conc/m3	Max size	Conc m3	Max size	LWC	Conc m3	Max size	LWC		

Revision date: 22/08/2007 8:15 AM

CLOUD PHYSICS PROCESSING LOG

Flight number: **B310** **T/O:** 11:46:16
Date of flight: 24/07/07 **Land:** 15:19:18

A) FFSSP PROCESSING		To Exeter
Processing Stage	Done?	Comments
1) Transfer *.txt files from DVD to processing PC		
Bnnn_FFSSP_hh.txt for each hour of data Bnnn_FFSSP_HVMS.txt		**hh =** **Last sec processed =**
2) FTP the files (ascii) from the PC to directory PMSDATA: on FLOODS		**File size =**
3) FLOODS> **RUN MRFB:[PMS.FAST_FSSP]FSSP_EXTRACT_TAS** a) Flight number: **Bnnn** b) Path name: **MFDDATA:Bnnn_MFDX** c) Output directory: **PMSDATA:** d) Start time: *0 if unknown (see comment box)* e) End time: *240000 if unknown*		Use time just before/after take-off/landing. If T/O /landing just after/before the hour, ensure start/end time is before/after the hour if there is an FFSSP_hh.txt file for that hour.
4) FLOODS> **RUN MRFB:[PMS.FAST_FSSP]FFSSP_PROCESS_TXT** a) Flight number: **Bnnn** b) Directory: **PMSDATA:** c) TAS in processing: **Y** d) Vel threshold (clicks) **0** e) Calibration file: *Use the most recent calibration file.* Format FFSSP_CALddmmyyyy.txt Calibration files to be stored in MRFB:[PMS.FAST_FSSP] f) Adjust FFSSP time **Y/N** g) If Y, enter value to add to data time (seconds)		**Total glitches =** **Sec file written ok?** **Note calibration file used** Yes only if gross errors occur in FFSSP time eg; ~ 1hour
5) FLOODS> **WAVE** a) WAVE> **write_procffssp_to_m5,'pmsdata:Bnnn_procffssp.dat', 'mfddata:Bnnn_mfdX','pmsdata:Bnnn_m5procffssp',/auto** b) WAVE> **exit**		Use PVWAVE for this section **Note time correction applied to FFSSP by /auto =**
6) FLOODS> **MODIFY** a) Modifying datasets: **pmsdata:Bnnn_m5procffssp** b) Dataset: **mfddata:Bnnn_mfdX** c) New dataset: **mfddata:Bnnn_mfdY (y=x+1)** d) Parameter description file: *leave blank to use default*		**Input file size =** **M5 output file size =**
7) CHECKS: i). Are FFSSP and JW/Nevzorov LWC synchronized in time? *In flight_plot, parameters* *JW LWC para 535* *Nevzorov LWC para 602* *FFSSP LWC para 1202* ii). If not, repeat from step 5b replacing /auto with **addt=x** which adds x+20 secs to FFSSP time.		**Synchronized?**

CLOUD PHYSICS PROCESSING LOG

Flight number: B310
Date of Flight:

B) 2D PROCESSING		REPROCESS +1hr
Processing Stage	Done?	Comments
1) Transfer Bnnn.dat file from CD/DVD to PC	Y	
2) Zip up file on PC (Bnnn.zip)	Y	
3) FTP the zipped file (binary) from the PC to the directory SEADAS_DATA:[SEADAS_DATA] on FLOODS	Y	21865 BLOCKS
4) Log on to FLOODS		
5) Unzip SEADAS_DATA:[SEADAS_DATA]Bnnn.zip	Y	**Size of Bnnn.dat =** 154900
6) FLOODS> **WAVE** WAVE> **CONVERT_SEADAS_FILE** a) Input file: **SEADAS_DATA:[SEADAS_DATA]Bnnn.dat** b) Output file: **SEADAS_DATA:[SEADAS_DATA]Bnnn_seadas.dat** WAVE> **exit**	Y	Use PVWAVE for this section **Blocks read = 35383** **Blocks written = 35382** **Bad reads = 1**
7) FLOODS> **RUN MRFB:[PMS.SEADAS]READM200_FILE** a) Default directory: **PMSDATA:** b) Flight number: **Bnnn** c) Disk file name: **SEADAS_DATA:[SEADAS_DATA]Bnnn_seadas.dat** d) Comment string: e) Start time: *0 if unknown (T/O – 5 min)* f) End time: *240000 if unknown (Land + 5 min)* g) Read 2DC: **Y** h) Read 2DP: **Y** i) Secondary data: **Y** j) FSP-SYNC: **Y** k) cmd.str: **Y** l) Auto time correction: **N** m) Full length secondary:**N**	Y	**Start = 114000** **End = 152500** Ignore error message scroll (vestigial error from tapes) **Are FRW, FSP, IMB, PCA,SEC files in PMSDATA? Y** **Are they non-zero in size? Y**
8) FLOODS> **WAVE** i). WAVE> **imagedisplay** a) 2D directory name: **PMSDATA:** b) Flight number: **Bnnn** c) File generation no: **0** d) Time from IWC plot: **N** e) Select probe: (**1**) 2DC (**2**) 2DP f) Start time: *As in 7e above* g) End time: *As in 7f above* h) Time interval (sec): **5** recommended (0 for all images) ii). WAVE> **auto_image** a) 2D directory name: **PMSDATA:** b) Flight number: **Bnnn** c) Enter date: **YYYYMMDD** d) Enter start time: *0 if unknown (T/O – 1 min)* e) Enter end time: *240000 if unknown (Land – 1 min)* f) Enter time interval (sec) between successive imaged blocks: **10** iii). WAVE> **exit** to create files iv). FTP ascii *.PS files from PMSDATA: to PC v). Load each into Ghostview or other pdf-converter vi). Output as pdf file (720 dpi resolution), appending name prefix of **CORE-CLOUD-PHY**_ to converted files	Y	2D image display and printing Must be done from FLOODS itself. **Note any problems with images** Images 114525-150230 Some noise on 2DP Prepare imagery for Core data From own PC again **Start = 114500** **End = 152000** FAAM_YYYYMMDD_R0_ Bnnn_2Dx-images.ps Notes on this in instructions 22 pp 2dc 31 pp 2dp

9) FLOODS> **RUN MRFB:[PMS.SPEC2D.AUTO]PROCESS2D_AUTO** a) Flight number: **Bnnn** b) Directory: **PMSDATA:** c) File generation: *Hit enter* d) Time correction: *Time offset of the 2D data* e) TAS: **Y** f) MFD directory: **MFDDATA:Bnnn_MFDX** g) Probe number: (**1**) 2DC (**2**) 2DP (**0**) Both *0 unless either probe known to be faulty* h) Start time: *0 if unknown (T/O + 30sec)* i) End time: *240000 if unknown (Land – 30sec)* j) Nominal averaging: **0.2** seconds for conversion to M5 k) Particle type 2DC: **8** if known to be in ice cloud **11** if known to be in water cloud l) Particle type 2DP: **8** if known to be in mixed-phase **8** if unknown m) Coefficient choice: **2** n) Output root filename: **PMSDATA:Bnnn_PROC2D**	Y	NB. an error message may appear, floating point exception, rerun and use time quoted in error message, repeat until successful. **X =** **Start = 114500** **End =** 152000 **Time data processed to =** 150257 **2dproc files present? Y** *.2dc, *.2dp and *.dat
10) FLOODS> **WAVE** i) WAVE> **WRITE_PROC2D_TO_M5, 'PMSDATA:BNNN_PROC2D.DAT', 'PMSDATA:BNNN_M5PROC2D'** ii). **exit**	Y	Use PVWAVE for this section Error message about HDDR file should be ignored. **Records = 5651, 178**
11) FLOODS> **MODIFY** a) Modifying datasets: **pmsdata:Bnnn_m5proc2D** b) Datset: **mfddata:Bnnn_mfdX** c) New dataset: **mfddata:Bnnn_mfdY** d) Parameter description file: leave blank to use default	Y	 **X = b310_tas** **Y = (X+1) = b310_tas_2d**
12) CHECKS: Are 2DC/2DP IWC of comparable magnitude and well-correlated with Nevzorov TWC? *In flight_plot, parameters* *Nevzerov TWC para 605* *2DC IWC para 1302* *2DP IWC para 1312*	N	Data present in _tas_2d **Correlated?**

CLOUD PHYSICS PROCESSING LOG

Flight number: **B310**
Date of Flight: **24/07/07**

C) PCASP PROCESSING		
Processing Stage	Done?	Comments
1) Complete stage 7) in 2D processing Ensures Bnnn_FSP.DAT containing raw PCASP data is written to directory PMSDATA:	**Y**	
2) FLOODS> **RUN MRFB:[PMS.PCASP]PROCPCASP_NEW**		
a) Flight number: **Bnnn** b) File name: **PMSDATA:Bnnn_FSP.DAT** c) Root output name: **PMSDATA:Bnnn_PROCPCASP** Produces PMSDATA:Bnnn_PROCPCASP.DAT (binary) PMSDATA:Bnnn_PROCPCASP.OUT (ascii) d) Minimum size channel: *default = 1* *If smallest size channel are known to be noisy the value of the highest noise free channel to be entered here* e) Calibration volume flow rate: *Use the most recent value. (1.15ccs^{-1} Feb 07)* *Calibration files to be stored in **Exeter*** *Entering zero gives default value = 1.0 cm^{3}s^{-1}* f) Time correction: *Same value as used in 2D processing stage 9d* g) Start time: *0 if unknown* h) End time: *240000 if unknown*		**Min size = 2** **Vol flow rate =** 1.0 114500 152000
3) FLOODS> **WAVE**	**Y**	Use PVWAVE for this section
i).WAVE> **write_procpcasp_to_m5,** **'pmsdata:Bnnn_procpcasp.dat',** **'pmsdata:Bnnn_m5procpcasp'** ii). WAVE> **exit**		
4) FLOODS> **MODIFY**	**Y**	
a) Modifying datasets: **pmsdata:Bnnn_m5procpcasp** b) Dataset: **mfddata:Bnnn_mfdX** c) New dataset: **mfddata:Bnnn_mfdY** d) Parameter description file: *leave blank to use default*		**X = _tas_2d** **Y = X+1 = _tas_2dpcasp**
5) CHECKS Are PCASP and JW peaks synchronous? *In flight_plot, parameters* *Neph – total blue scatter.* *PCASP conc para 1550*	**N**	Data present in tas_2dpcas **Merged OK?**

Wet Nephelometer Log

Flight No B.510 Date 24/07/07 Operator's name: D. TIDEMAN Page 1 of 1

GMT	Run	Height	Sample flow	Dry neph RH	Wet neph RH	Temp ramp	T_{water}	Remarks
115517	—	—	14.6	44.2	48.2	—	20°	
120050	Run 1	2500	12.8	56.8	52.3	⊠5°	20°	
120851	"	"	12.8	56.2	44.8	⊠40°	8°	
121600	Profile	2500	12.8	54.6	82.3	⊠5°	40°	
	~~Run 2~~	~~7000~~						
122700	Run 2	7000	11.1	37.0	42.4	⊠40	12°	
123340	~~Profile~~ 3	7000	11.1	38	79.6	⊠10	40°	
124513	Run 3	2500	14.8	54.6	50.8	⊠40	12°	
125220	Run 3	"	10.2	52	84.5	40	40°	
125536	~~Profile~~ 4		10.2	48.4	86.0	⊠10	40°	
130430	Run 4	7000	15.0	36.0	44.0	⊠40	14°	
131240	Profile	7000	14.8	33.1	79	⊠5	40°	
132100	"	14000	13.1	7.6	31.0	—	14.9°	~~Chiller OFF~~ Humidifier OH
144146	"	—	11.7	20.4	32.2	⊠5°	17°	~~Chiller ON~~ Humidifier On
144849	Run 8	2500M	14.0	54.9	40.5	~~40~~⊠°	7°	
145730	"	"	14.1	55.6	86.2	10°⊠	40°	
150911								~~Chiller OFF~~ Humidifier OH

B310 CVI log

7/24/07	11:53:15 AM	in cloud
7/24/07	11:56:52 AM	in cloud
7/24/07	11:57:33 AM	out of cloud
7/24/07	11:59:01 AM	patchy cloud.
7/24/07	12:01:05 PM	sor1.1 2500ft
7/24/07	12:01:54 PM	patchy cloud
7/24/07	12:03:18 PM	clear now
7/24/07	12:15:22 PM	cloud physics 5000/cc??
7/24/07	12:16:25 PM	eor1
7/24/07	12:17:26 PM	p1 to 7500ft pcasp low
7/24/07	12:22:05 PM	R2@7000ft
7/24/07	12:22:40 PM	in cloud
7/24/07	12:22:42 PM	in cloud
7/24/07	12:23:15 PM	in cloud
7/24/07	12:33:45 PM	eor2
7/24/07	12:39:08 PM	R3 @2500ft below cloud, just.
7/24/07	12:43:39 PM	rain
7/24/07	12:46:54 PM	rain
7/24/07	12:49:49 PM	occasional rain
7/24/07	12:54:05 PM	eor3
7/24/07	12:59:47 PM	r4 @7000 in cloud
7/24/07	1:05:27 PM	rain
7/24/07	1:12:17 PM	eor4
7/24/07	1:13:50 PM	cvi pump on
7/24/07	1:16:25 PM	profile up to 20000 in box. in cloud but no pcasp counts?
7/24/07	1:31:18 PM	cnc flow light off at high level
7/24/07	1:35:01 PM	r5
7/24/07	1:35:06 PM	
7/24/07	1:35:07 PM	
7/24/07	1:35:17 PM	patchy cloud
7/24/07	1:36:46 PM	cloud
7/24/07	1:38:41 PM	cloud
7/24/07	1:40:00 PM	out of cloud
7/24/07	1:41:06 PM	cloud
7/24/07	1:43:51 PM	eor5
7/24/07	1:45:38 PM	r5.2 fl100
7/24/07	1:46:55 PM	cloud
7/24/07	1:47:17 PM	clear
7/24/07	1:53:52 PM	cloud r5.3 fl100
7/24/07	1:57:29 PM	cloud
7/24/07	1:57:57 PM	clear
7/24/07	2:00:29 PM	r5.4
7/24/07	2:00:36 PM	cloud
7/24/07	2:02:51 PM	p7 to fl120
7/24/07	2:16:09 PM	cloud
7/24/07	2:16:23 PM	
7/24/07	2:17:40 PM	patchy cloud
7/24/07	2:18:28 PM	clear fl100
7/24/07	2:26:39 PM	profile up to get temp profile
7/24/07	2:28:06 PM	tops of cloud
7/24/07	2:31:03 PM	eop 10
7/24/07	2:36:13 PM	no sig development in cloud so profile decent to low level p11
7/24/07	2:40:57 PM	cvi pum off for another run down valley in aerosol mode
7/24/07	2:43:07 PM	rcloud
7/24/07	2:48:12 PM	cleari
7/24/07	2:48:54 PM	r8 2500ft
7/24/07	2:51:40 PM	flows adjusted on pcasp
7/24/07	3:02:08 PM	eor 8
7/24/07	3:03:10 PM	turning, high cnc?
7/24/07	3:03:44 PM	r9
7/24/07	3:03:56 PM	clear
7/24/07	3:07:33 PM	eor 9

Flight: B310

KEY

- Not Fitted
- Fitted, Not Operated
- Duff Data
- Minor Problems
- OK

Thermometers
- Cabin Temperature:
- Heimann:
- Deiced Temp:
- Non-deiced Temp:

Hygrometers
- FWVS:
- General Eastern:
- Johnson Williams:
- Nevzorov:
- Total Water Probe:

Cameras
- Downward Facing:
- Forward Facing:
- Rearward Facing:
- Upward Facing:

Navigation + Aircraft
- Cruciform GPS:
- GIN Applanix:
- INU Honeywell:
- Radar Altimeter:
- RVSM IAS:
- RVSM Static Pressure:
- XR5 GPS:

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Misc Core
- AMTG:
- AVAPS:
- Cabin Pressure:
- Fax machine:
- Printer:
- S9 Static Pressure:
- Satcom C:
- Satcom H:
- Turb Centre-Static:
- Turb Left Right:
- Turb Up-Down:
- Turb Horizontal Chk:
- Turb Vertical Chk:
- Weather Radar:

DLUs:
- DLU AERACK:
- DLU BBR Lower:
- DLU BBR Upper:
- DLU Core Chem:
- DLU Core Consoles:
- DLU Port Aft:
- DLU Port Fwd:
- DLU Stbd Fwd:

Radiometers
Lower:
- BBR (clear) Lower:
- BBR (IR) Lower:
- BBR (red) Lower:

Upper:
- BBR (clear) Upper:
- BBR (IR) Upper:
- BBR (red) Upper:

- ARIES:
- DEIMOS:
- IR Camera:
- JNO2 Lower:
- JNO2 Upper:
- JO1D Lower:
- JO1D Upper:
- MARSS:
- SHIMS Lower:
- SHIMS Upper:
- SWS:
- TAFTS:

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Cloud Probes
- 2DC:
- 2DP:
- FFSSP:
- PCASP:

- ADA:
- CCN:
- CDP:
- CIP 100:
- CIP 25:
- CPI:
- CVI:
- SID1:
- SID2:

Aerosol
- CPC 3025A:
- Filters 47mm:
- Filters 90mm:
- Neph - Dry:
- Neph - Wet:
- PSAP:
- AMS:
- CPC 3025 (AMS)
- INC:
- VACC:
- CPC 3010A (CVI):

Chemistry
- CO Aerolaser 5002:
- NOx TE42C:
- Ozone TE49C:
- Ozone TE49:
- SO2 TE43C:
- TDLAS (NIR) CH4:
- TDLAS (NIR) CO2:

- FAGE:
- Formaldehyde:
- NOxy:
- ORAC:
- PAN:
- PERCA:
- Peroxide:
- PTRMS:
- TDLAS (1C):
- WAS Bags:
- WAS Bottles:

Misc Non-Core
- CASI/ATM:
- LIDAR:
- LTI:
- SAW Hygrometer:

Faults / Incidents Log

Flight No. B310
Date: 24/07/2007

Instruments

1. Cloud Physics – new keyboards have sharp front edges, Cloud Physics Operator suffered scrapes to arms
2. FFSSP – uncertainty of operation
3. TWC – status light flashing occasionally in cloud. Parameter 70 TWC Detector going to 4095, Status word to 4094.
4. Satcom C – occasional "satcom hardware status unavailable" messages, otherwise okay.
5. AMS – Some problems
6. CPI – accidentally switch ups off in flight, otherwise okay
7. PCASP – not agreeing with CVI PCASP – Ch 1 noise.
8. GIN – wandered off to 68N during first part of flight. Reset power then okay

Note Turb Probe traps checked empty preflight

Aircraft

1. Flight Managers headset very floppy – swapped for another one

Satcom-H Calls

Hornisgrinde

Post Flight - Turb Probe Water Traps

1. Indicate Amount of Water: a) Nil b) 1-2 drops c) ¼ full or more d) Ice present
2. Emptied by:
3. Dried by:

Pre-Flighter's Log

Date: 24/7/07 Flight No: B310 Pre-Flighter: BW

No.	√ or x	Location	Action	Comments
1		Hangar	Collect Dustbin, put on a/c	
		Aircraft Cabin: Power-up		
2	✓	Core Chemistry	Gases x 3 ON	Already ON !
3	✓	Cabin	All Racks Checked	
4	✓	Fwd CorCon	All reqd CBs made	
5	✓	Aft CorCon	CBs made, PCs ON	
6	✓	HORACE	Optical Disk loaded	
7	✓	HORACE	Recording data	
8	✓	HORACE	DLU Status Checked	LBBR problem with CB
9	✓	HORACE	HORACE Status Checked	
10	✓	Satcom H	Power LED ON	
11	✓	Nevzorov	Checked and OFF	
12	✓	GPS	Checked	
13	✓	INU	Align	
14	✓	Cameras Pictures	Checked x 4 OK	
15	✓	Core Chemistry	Instruments Checked OK	
16	✓	Core Chemistry	CO Flows Checked OK	
17	X	FWVS	Set up	Not Fitted
18	✓	Video x 2	Records okay, Rewind	
19	✓	DeIced Rosemount	Heater Checked / Set	
20	✓	Heimann	Calibration Checked	
21		TWC	ON & Checked	
22	✓	GE	Balance checked	
23	✓	INU	Navigate then back to Align	
24	✓	Hubs x 4	Checked ON	
25	✓	Fwd Console	Miss. Sci Laptop CB made	& CB on Port Fwd SSP
26	✓	CNC	Butanol filled	
27	✓	Dry Neph	Power up & Zero Cal	
28	✓	CGPS	Set up	Unable to boot Radar PC
29	✓	Miss. Sci Laptop	Checked Onboard	CPT seat
		Proceed to External Checks		

External Checks overleaf →

Pre-Flighter's Log

No.	√ or x	Location	Action	Comments
		External Checks		
29	✓	Turb Probe	Clean if reqd, Photo taken	
30	✓	JW	Cleaned & Checked	
31	✓	DI Rosemount	Cleaned & Checked	
32	✓	NDI Rosemount	Cleaned & Checked	
33	✓	Nevzorov	Cleaned/windings checked	
34	✓	GE	Cleaned & Checked	
35	✓	Lower BBRs	Domes cleaned/checked	
36	✓	Camera Windows	Cleaned	
37	✓	Heimann	Lens checked OK	
38		TWC Cover	Fitted if required	
39		All other covers	Removed	
40		Dustbin	Returned to hangar	
41		Tools	Check ALL in Toolkit	
42		Tools	Avalon informed	
		Avalon Checks		Signed
43		Upper BBRs Checked & Cleaned		
44		ICEX applied		
45		Turb Probe - Traps emptied, detail contents -		a)Nil b)1-2 drops c)1/4 full or more
46		Turb Probe - Traps dried and resealed		

MISSING LOG SHEETS:

The following log sheets are not available for flight B310:

Log	Reason
Core Chemistry	no In Flight log except in cases of instrument problems
VACC	VACC operator does not create a log sheet
CPI	CPI operator does not create a log sheet
PSAP log	No log as PSAP pump/filter info included on Flight Summary page
AMS	Log only of interest to instrument operator so no copy left with FAAM

Document control

Revision	Date	Author	Comments
r0	23 Aug 2007	Doug Anderson	Initial version missing the above noted logs
r1	13 Sep 2007	Doug Anderson	Pre-flighter log added
r2	15 Jan 2008	Doug Anderson	Updated video tape holder information

VIDEO RECORDINGS:

2 x Upward Facing Cameras
2 x Forward Facing Cameras

Digital8 video recordings from this flight reside with :

Prof Alan Blyth

Head, NCAS Universities Facility for Atmospheric Measurement
Institute for Atmospheric Science,
Environment, School of Earth and Environment,
University of Leeds, Leeds, LS2 9JT, UK

Tel: +44 (0) 113 343 1632 / +44 (0) 131 650 6025 / +44 (0) 783 364 4482

E-mail: blyth@env.leeds.ac.uk